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EXAMINER
ONI, OLUBUSOLA

ART UNIT	PAPER NUMBER
2168	

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/603,411	ARMANGAU ET AL.
	Examiner	Art Unit	
	OLUBUSOLA ONI	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 June 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-66</u> is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-66</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All b)☐ Some * c)☐ None of:

　　　　1.☐ Certified copies of the priority documents have been received.

　　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date <u>06/25/03</u>.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

Detailed Action

1.   This action is responsive to communication: Application, filed on 06/25/2003.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by

another filed in the United States before the invention thereof by the applicant for

patent, or on an international application by another who has fulfilled the requirements

of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof

by the applicant for patent.

3.   Claims 1-5, 7-8, 10-11,13-15, 19-30, 32-33, 35-36, 38-40, 44-58, 62-66 are been

rejected under 35 U.S.C. 102(e) as being anticipated by Goldstein et al. (Pub No.

20020112134)

For claim 1, Goldstein et al. teaches "receiving a request for the difference

between a specified older one of the snapshot copies and a specified younger one of

the snapshots copies" (See paragraphs [0011] and [0024] wherein Goldstein's

teachings include acquiring the difference between the base state snapshot and the data base volume snapshot as implied in applicant's claim language) "and the snapshot copy facility responding to the request by returning the difference between the specified older one of the snapshot copies and the specified younger one of the snapshot copies" (See paragraphs [0030] and [0032] wherein Goldstein's teachings include the difference between the base state snapshot and the data base volume snapshot, as implied in applicant's claim language).

For claim 2, Goldstein et al. teaches "wherein the production file system includes blocks of data, and the snapshot copy facility returns an identification of each block that has changed between the specified older one of the snapshot copies and the specified younger one of the snapshot copies, and the snapshot copy facility returns the data in the specified younger one of the snapshot copies for said each block that has is changed between the specified older one of the snapshot copies and the specified younger one of the snapshot copies" (See paragraphs [0011] and [0024] and [0027] and [0029] wherein Goldstein's teachings included identifying and producing a list of data blocks which differ between the subsequent snapshots, thus teachings are synonymous).

For claim 3, Goldstein et al. teaches "wherein the identifications of the changed blocks and the data of the changed blocks are returned in a sequential block number order" (See Fig [6] and [7]).

For claim 4, Goldstein et al. teaches, "wherein the snapshot copy facility has an index for each snapshot copy for indicating changes between said each snapshot copy and a next snapshot copy of the production file system, and the method includes scanning the index for the specified older one of the snapshot copies" (See paragraphs [0029] and [0043] and Fig 10 of Goldstein's drawings illustrate the repetitive obtaining of a snapshot difference list, as implied in applicants claim language).

For claim 5, Goldstein et al. teaches "wherein the index for at least one of the snapshot copies is a bit map" (See paragraph [0029] wherein Goldstein teaches data block been 65 bytes, as implied in applicant's claim language).

For claim 7, Goldstein et al. teaches " which includes scanning the indices for a sequence of the snapshot copies including the index for the specified older one of the snapshot copies and a respective index for each snapshot copy of the production file system that is both younger than the specified older one snapshot copies and older than the specified younger one of the snapshot copies" (See paragraphs [0027] and [0028] and Fig 3 of Goldstein's drawings illustrates the base state snapshot and a subsequent series of data volume snapshots).

For claim 8, Goldstein et al. teaches "wherein the indices for the sequence of the snapshot copies are scanned by a program routine having an outer loop-indexing

blocks of data in the file system, and an inner loop indexing the snapshot copies in the sequence of the snapshot copies"(See paragraph [0025], [0027] and Fig 3 wherein Goldstein teaches indexing snapshot copies, thus teachings are synonymous).

For claim 10, this claim is rejected on grounds corresponding to the arguments given above for rejected claim 7 and is similarly rejected.

For claim 11, this claim is rejected on grounds corresponding to the arguments given above for rejected claim 5 and is similarly rejected.

For claim 13, this claim is rejected on grounds corresponding to the arguments given above for rejected claims 2-3 and is similarly rejected.

For claim 14, this claim is rejected on grounds corresponding to the arguments given above for rejected claim 3 and is similarly rejected.

For claim 15, this claim is rejected on grounds corresponding to the arguments given above for rejected claim 8 and is similarly rejected.

For claims 19 and 21, these claims are rejected on grounds corresponding to the arguments given above for rejected claim 1 and are similarly rejected.

For claim 20, Goldstein et al. teaches "wherein the more recent snapshot copy of the production file system is the most recent one of the snapshot copies of the production file system that are stored in the snapshot copy facility"(See paragraph [0031] wherein Goldstein teaches deleting the base state snapshot once a succedent backup occurred, which reads on applicant's clam language).

For claims 22-23, these claims are rejected on grounds corresponding to the arguments given above for rejected claims 1 and 2 and are similarly rejected.

For claim 25, this claim is rejected on grounds corresponding to the arguments given above for rejected claim 1 and is similarly rejected

For claims 24-26, these claims are rejected on grounds corresponding to the arguments given above for rejected claims 1 and are similarly rejected.

For claims 27-28, these claims are rejected on grounds corresponding to the arguments given above for rejected claims 1 and 3 and are similarly rejected.

For claims 29-30, these claims are rejected on grounds corresponding to the arguments given above for rejected claims 4-5 and are similarly rejected.

For claims 32-33, these claims are rejected on grounds corresponding to the arguments given above for rejected claims 7-8 and are similarly rejected.

For claim 35, this claim is rejected on grounds corresponding to the arguments given above for rejected claims 4 and 7 and is similarly rejected.

For claim 36, this claim is rejected on grounds corresponding to the arguments given above for rejected claim 5 and is similarly rejected.

For claims 38-39, these claims are rejected on grounds corresponding to the arguments given above for rejected claims 2-3 and are similarly rejected.

For claim 40, this claim is rejected on grounds corresponding to the arguments given above for rejected claim 8 and is similarly rejected.

For claims 44, these claims are rejected on grounds corresponding to the arguments given above for rejected claim 1 and is similarly rejected.

For claim 45, this claim is rejected on grounds corresponding to the arguments given above for rejected claim 20 and is similarly rejected.

For claims 46-47, these claims are rejected on grounds corresponding to the arguments given above for rejected claims 1 and 2 are similarly rejected.

For claim 48, this claim is rejected on grounds corresponding to the arguments given above for rejected claim 20 and is similarly rejected.

For claims 49-52, these claims are rejected on grounds corresponding to the arguments given above for rejected claims 1-4 and are similarly rejected.

For claims 53-54, these claims are rejected on grounds corresponding to the arguments given above for rejected claims 7-8 and are similarly rejected.

For claim 55, this claim is rejected on grounds corresponding to the arguments given above for rejected claims 4 and 7 and is similarly rejected.

For claims 56-57, these claims are rejected on grounds corresponding to the arguments given above for rejected claims 2 - 3 and are similarly rejected.

For claim 58, this claim is rejected on grounds corresponding to the arguments given above for rejected claim 8 and is similarly rejected.

For claims 62 this claim is rejected on grounds corresponding to the arguments given above for rejected claim 1 and is similarly rejected.

For claim 63, these claims are rejected on grounds corresponding to the arguments given above for rejected claim 20 and is similarly rejected.

For claim 64-65, these claims are rejected on grounds corresponding to the arguments given above for rejected claims 1 and 2 and are similarly rejected.

For claim 66, this claim is rejected on grounds corresponding to the arguments given above for rejected claim 20 and is similarly rejected.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 6, 12, 31 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldstein as applied to claims 4,10, 29 and 35 above, and further in view of Hargrave communication dictionary, Wiley (Copyright 2001).

(hereinafter Hargrave).

As per claim 6, 12, 31 and 37 these claims are rejected on the grounds

corresponding to the argument given above for rejecting claims 4, 10, 29 and 35 above

including the following reasons:

Goldstein does not explicitly teach " wherein the indexes for at least one of the snapshot

copies includes a hash table". Hargrave teaches hash table for indexing results (See

Xreferplus.com).

It would have been obvious at the time of the invention for one of ordinary

skill in the art to have combined the teachings of Goldstein and Hargrave, because

indexing is well know in the art and using Hargrave's dictionary would have given those

skilled in the art a tool for reducing the number of elements searched and improve

access to snapshot copies

5.   Claim 9,16,17, 18, 34, 41,42, 43,59,60, 61 rejected under 35 U.S.C. 103(a) as

being unpatentable over Goldstein as applied to claims 1, 15, 35, 55 above, and further

in view of Ohran et al (Pub No. US 20020112134).

(hereinafter Ohran).

As per claim 9,16,41,59 these claims are rejected on the grounds corresponding

to the argument given above for rejecting claims 1, 15, 35 and 55 above including the

following reasons:

Goldstein does not teach " wherein the snapshot copy facility has a meta bit map

for each snapshot copy for indicating blocks of data that are know to be invalid in ...".

Ohran's teachings and drawings illustrate writing invalid or corrupted data to certain

data blocks in the mass storage device (See paragraph [0015] and [Fig 3])

Goldstein does not teach " and when the meta bit map is found to indicate that a block

is not know to be invalid..." Ohran teaches determining whether there has been a

change between the data sets after confirming the valid data block (See paragraph

[0045]).

It would have been obvious at the time of the invention for one of ordinary skill in

the art to have combined the teachings of Goldstein and Ohran, because using the

teaches of Ohran would have given those skilled in the art a tool for checking a valid or

invalid blocks of data before checking for changes.

As per claim 17, 18, 42, 43, 60and 61 Goldstein teaches "the snapshot copy

facility having a first index for each snapshot copy for indicating blocks of data in the

production file system that have changed between said each snapshot copy and a next

snapshot copy ..." (See paragraphs [0029] and [0043] and Fig 10)

Goldstein does not teach "the snapshot copy facility having a second index for

each snapshot copy for indicating blocks of data that are not in use" Ohran teachings

include writing invalid or corrupted data to a certain data block. Wherein the abstract

states data loss could be caused by data blocks becoming corrupt or lost, therefore data

not in use is equivalent to data loss. (See paragraph [0015] and Fig 3)

It would have been obvious at the time of the invention for one of ordinary skill in the art to have modified <u>Goldenstein</u> by the teachings of <u>Ohran</u>, to access the first and second index before checking for changes between the snapshot copies.

CONCLUSION

6.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US# 6,732,124, 20050015416, 6209000, 6785786

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLUBUSOLA ONI whose telephone number is 571-272-2738. The examiner can normally be reached on 7.30-5.00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JEFFERY GAFFIN can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

OLUBUSOLA ONI
Examiner
Art Unit 2168